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09/992,247	11/16/2001	Ryuji Wakabayashi	0828.6598	5365

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EXAMINER

WASSUM, LUKE S

ART UNIT	PAPER NUMBER
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2177

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/992,247

Applicant(s)

WAKABAYASHI, RYUJI

Examiner

Luke S. Wassum

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *The Invention*

2. The claimed invention is a system and method for backing up databases, wherein update information and interrelation information are both transmitted from a database apparatus to a backup apparatus.

### *Drawings*

3. The drawings are objected to because the examiner believes that in Figure 6, the second entry 'a1' in Log File #1 should be 'a2'. Furthermore, the bottom two logs are labeled as Log File # 1, but the examiner believes that it may have been intended that they be labeled as Log File 2.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not disclose the transmission completion information transmitting means, nor any details of such an operation.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Regarding claim 4, the limitation that the serial number of the preceding update information is affixed when there exists no associated update information, but this is inconsistent with the Applicant's disclosure.

As illustrated in Figure 6, for the entry 'b4', the serial number corresponding to group a, the affixed serial number is 2, while the immediately preceding update information would be 3.

9. Regarding claim 5, the limitation "while looking up the transmission completion information and the interrelation information" renders the claim indefinite, since it is unclear what is done with

the transmission completion information, and furthermore because the interrelation information is claimed as being looked up by both the updating means and the interrelation determining means.

*Claim Rejections - 35 USC § 102*

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3 and 5-11 are rejected under 35 U.S.C. 102(b) as being anticipated by **Bailey et al.** (U.S. Patent 5,794,252).

12. Regarding claim 1, **Bailey et al.** teaches a backup system including a database apparatus having a plurality of databases (see disclosure of the use of a DBMS, which are capable of managing multiple databases, col. 1, lines 15-24) and a backup apparatus for holding a backup of information stored in the database apparatus as claimed, wherein said database apparatus comprises:

- a) update information generating means for generating, with respect to individual databases, update information indicating contents of updates of the databases (see disclosure of the use of the Master Audit Trail (MAT) and audit image records to transmit database changes, col. 2, lines 18-46);
- b) interrelation information generating means for generating interrelation information indicating an interrelation between the update information for a certain database and the update information for other databases (see disclosure of COMMIT/ABORT

indicators, which link specific database actions into a single transaction, col. 7, lines 59-61; see also col. 12, lines 55-66); and

c) transmitting means for transmitting the update information and the interrelation information to said backup apparatus (see col. 2, lines 18-46); and

said backup apparatus comprises:

d) receiving means for receiving the update information and the interrelation information transmitted from said database apparatus (see col. 2, lines 50-63);

e) backup databases for holding backups of contents of the databases owned by said database apparatus (see col. 2, lines 50-63);

f) interrelation determining means for looking up the interrelation information received by said receiving means to determine the interrelation of each of said update information (see col. 8, lines 9-17); and

g) updating means for updating said backup databases based on the update information of which the interrelation is verified by said interrelation determining means (see col. 2, lines 50-63).

13. Regarding claim 2, **Bailey et al.** additionally teaches a backup system wherein said database apparatus further comprises affixing means for affixing the interrelation information to the update information (see disclosure of the use of COMMIT/ABORT entries, col. 1, lines 30-32; see also col. 6, lines 58-65; see also col. 7, lines 55-65); and said backup apparatus further comprises extracting means for extracting the interrelation information from the update information received by said receiving means (see col. 7, lines 55-65; see also col. 8, lines 9-17).

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14. Regarding claim 3, **Bailey et al.** additionally teaches a backup system wherein the interrelation information is information indicating the presence/absence of other update information interrelated with the update information concerned (see disclosure of audit records indicating an association with a particular transaction, col. 7, lines 55-65).

15. Regarding claim 5, **Bailey et al.** additionally teaches a backup system wherein said database apparatus further comprises transmission completion information transmitting means for transmitting, with respect to the individual databases, transmission completion information indicating update information whose transmission is completed (see disclosure of the transmission of COMMIT/ABORT records, indicating that the associated transaction has been transmitted, col. 6, lines 58-67); and said updating means of said backup apparatus updates said backup databases while looking up the transmission completion information and the interrelation information (see col. 8, lines 9-17).

16. Regarding claim 6, **Bailey et al.** teaches a database apparatus having a plurality of databases as claimed, comprising:

- a) update information generating means for generating, with respect to the individual databases, update information indicating contents of updates of the databases (disclosure of the use of the Master Audit Trail (MAT) and audit image records to transmit database changes, col. 2, lines 18-46);
- b) interrelation information generating means for generating interrelation information indicating an interrelation between the update information for a certain database and the update information for other databases (see disclosure of COMMIT/ABORT

indicators, which link specific database actions into a single transaction, col. 7, lines 59-61; see also col. 12, lines 55-66); and

- c) transmitting means for transmitting the update information and the interrelation information to said backup apparatus (see col. 2, lines 18-46).

17. Regarding claim 7, **Bailey et al.** teaches a backup method for a database apparatus having a plurality of databases as claimed, comprising:

- a) an update information generating step of generating, with respect to the individual databases, update information indicating contents of updates of the databases (disclosure of the use of the Master Audit Trail (MAT) and audit image records to transmit database changes, col. 2, lines 18-46);
- b) an interrelation information generating step of generating interrelation information indicating an interrelation between the update information for a certain database and the update information for other databases (see disclosure of COMMIT/ABORT indicators, which link specific database actions into a single transaction, col. 7, lines 59-61; see also col. 12, lines 55-66); and
- c) a transmitting step of transmitting the update information and the interrelation information to said backup apparatus (see col. 2, lines 18-46).

18. Regarding claim 8, **Bailey et al.** teaches a program for causing a computer to function as a database apparatus having a plurality of databases as claimed, wherein said computer functions as:

- a) update information generating means for generating, with respect to the individual databases, update information indicating contents of updates of the databases



(disclosure of the use of the Master Audit Trail (MAT) and audit image records to transmit database changes, col. 2, lines 18-46);

- b) interrelation information generating means for generating interrelation information indicating an interrelation between the update information for a certain database and the update information for other databases (see disclosure of COMMIT/ABORT indicators, which link specific database actions into a single transaction, col. 7, lines 59-61; see also col. 12, lines 55-66); and
- c) transmitting means for transmitting the update information and the interrelation information to said backup apparatus (see col. 2, lines 18-46).

19. Regarding claim 9, **Bailey et al.** teaches a backup apparatus for holding a backup of information stored in a database apparatus, comprising:

- a) receiving means for receiving the update information and the interrelation information transmitted from said database apparatus (see col. 2, lines 50-63);
- b) backup databases for holding backups of contents of the databases owned by said database apparatus (see col. 2, lines 50-63);
- c) interrelation determining means for looking up the interrelation information received by said receiving means to determine the interrelation of each of said update information (see col. 8, lines 9-17); and
- d) updating means for updating said backup databases based on the update information of which the interrelation is verified by said interrelation determining means (see col. 2, lines 50-63).

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20. Regarding claim 10, **Bailey et al.** teaches a backup method enabling backup databases to hold a backup of information stored in a database apparatus, comprising:

- a) a reception step of receiving the update information and the interrelation information transmitted from said database apparatus (see col. 2, lines 50-63);
- b) an interrelation determining step of looking up the interrelation information received by said receiving means to determine the interrelation of each of said update information (see col. 8, lines 9-17); and
- c) an update step of updating the backup databases based on the update information of which the interrelation is verified by said interrelation determining means (see col. 2, lines 50-63).

21. Regarding claim 11, **Bailey et al.** teaches a program for causing a computer to perform a process of holding a backup of information stored in a database apparatus, wherein said program causes the computer to function as:

- a) receiving means for receiving the update information and the interrelation information transmitted from said database apparatus (see col. 2, lines 50-63);
- b) backup databases for holding backups of contents of the databases owned by said database apparatus (see col. 2, lines 50-63);
- c) interrelation determining means for looking up the interrelation information received by said receiving means to determine the interrelation of each of said update information (see col. 8, lines 9-17); and

- d) updating means for updating said backup databases based on the update information of which the interrelation is verified by said interrelation determining means (see col. 2, lines 50-63).

### *Conclusion*

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Satoh et al.** (U.S. Patent 5,640,561) teaches a method for continuously maintaining replicas of an active database in a backup system for disaster recovery purposes.

**Gostanian et al.** (U.S. Patent 5,781,910) teaches an actively replicated, fault-tolerant database system based on a state-machine approach that supports concurrent execution of multiple transactions requested by a plurality of clients communicating with the system.

**Breitbart et al.** (U.S. Patent 5,864,851) teaches a method of managing transactions operating on replicated data items at multiple physical sites in a distributed database system.

**Mosher, Jr.** (U.S. Patent 5,884,328) teaches a method of synchronizing a large database and its replica.

**Zaiken et al.** (U.S. Patent 5,907,848) teaches a method of providing external transaction protection for a database using the database log or journal.

**Kung** (U.S. Patent 5,933,837) teaches a database network having a primary database and a plurality of heterogeneous subscribing databases for replicating data updates in the primary database.

**Olson et al.** (U.S. Patent 5,995,980) teaches a new, high-performance system for updating databases or other data compilations with changes entered in a source database or data compilation.

**Martin et al.** (U.S. Patent 6,029,178) teaches a system for providing consistency of replicated data in a distributed enterprise computing system by maintaining and using edition level values for data objects in both source and target database systems.

**Beier et al.** (U.S. Patent 6,065,018) teaches a method of synchronizing recovery logs transmitted to a remote site for recovering related databases having different logical structuring.

**Gehani et al.** (U.S. Patent 6,098,078) teaches a method of maintaining consistency in databases among data processors of a computer network.

**Kern et al.** (U.S. Patent 6,199,074) teaches a database management system that ensures consistency between primary and mirrored backup copies of a database.

**Rastogi et al.** (U.S. Patent 6,205,449) teaches a method of providing hot spare redundancy and recovery for a very large database management system.

**Brodersen et al.** (U.S. Patent 6,266,669) teaches a method of collecting, storing and retrieving data in a partially replicated distributed database management system.

**Fujita et al.** (U.S. Patent 6,411,985) teaches an interserver data association apparatus capable of making data association with respect to a plurality of reception servers based on data transmitted from one transmission server.

**LaRue et al.** (U.S. Patent 6,449,622) teaches a system for synchronizing information in datasets via a communication medium suitable for synchronizing across communication mediums that are susceptible to high latency, out of order delivery, or other adverse characteristics.

**Perry** (U.S. Patent 6,526,417) teaches a system for change accumulation and unmerged update reduction.

**Mosher, Jr.** (U.S. Patent 6,584,477) teaches a high speed system for replicating a large database at a remote location.

**Bernstein et al.** (“Concurrency, Control and Recovery in Database Systems”) teaches replicated databases.

**King et al.** (“Management of a Remote Backup Copy for Disaster Recovery”) teaches a remote backup database that tracks the state of a primary system, taking over transaction processing when disaster hits the primary site.

**Gray et al.** (“Transaction Processing: Concepts and Techniques”) teaches techniques for ensuring data integrity over the course of database transaction processing.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke S. Wassum whose telephone number is 703-305-5706. The examiner can normally be reached on Monday-Friday 8:30-5:30, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

In addition, INFORMAL or DRAFT communications may be faxed directly to the examiner at 703-746-5658.

Customer Service for Tech Center 2100 can be reached during regular business hours at (703) 306-5631, or fax (703) 746-7240.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Luke S. Wassum  
Art Unit 2177

lsw  
15 April 2004